

Name _____

Keystone Warm-ups

Chapter 11: Genetics

Copy down all 4 answer choices for the daily warm-up from the board in the space below its question. Choose the best answer by circling its letter. Then, after we go over it, write the correct answer in the block provided on the front of the packet.

1		2		3		4		5	
6		7		8		9		10	
11		12		13		14		15	

1. The chart to the right shows relationships between genes, the environment, and coloration of tomato plants.

Inherited Gene	Environmental Condition	Final Appearance
A	Light	Green
B	Light	White
A	Dark	White
B	Dark	White

Which statement best explains the final appearance of these tomato plants?

- (A) The expression of gene A is not affected by light.
- (B) The expression of gene B varies with the presence of light.
- (C) The expression of gene A varies with the environment.
- (D) Gene B is expressed only in darkness.

2. Fruit flies with the curly-wing trait will develop straight wings if kept at a temperature of 16°C during development and curly wings if kept at 25°C. The best explanation for this change in the shape of wings is that the

- (A) genes for curly wings and genes for straight wings are on different chromosomes
- (B) types of genes present in the fruit fly is dependent on environmental temperature
- (C) environment affects the expression of the genes for this trait
- (D) higher temperature produces a gene mutation

3. Scientific studies show that identical twins who were separated at birth and raised in different homes may vary in height, weight, and intelligence. The most probable explanation for these differences is that

- (A) original genes of each twin increased in number as they developed
- (B) one twin received genes only from the mother while the other twin received genes only from the father
- (C) environments in which they were raised were different enough to affect the expression of their genes
- (D) environments in which they were raised were different enough to change the genetic makeup of both individuals

4. A tall plant is crossed with a short plant. Which of the following offspring could result?

- (A) all medium plants
- (B) all tall plants and no short plants
- (C) some tall plants and some short plants
- (D) either B or C is possible

5. In a flowering plant species, red flower color is dominant over white flower color. What is the genotype of any red-flowering plant resulting from this species?

- (A) red and white alleles present on one chromosome
- (B) red and white alleles present on two chromosomes
- (C) a red allele present on both homologous chromosomes
- (D) a red allele present on at least one of two homologous chromosomes

6. Which of the following statements supports Mendel's Law of Independent Assortment?

- (A) Homologous chromosomes can line up in different combinations during Metaphase I of meiosis.
- (B) Homologous chromosomes can line up in different combinations during Metaphase of mitosis.
- (C) There is only one possible way homologous chromosomes can line up during Metaphase I of meiosis.
- (D) Offspring inherit one allele for each gene from each parent because they are distributed into separate gametes during mitosis.

7. The genes controlling seed shape and color are found on different chromosomes. Round seeds are dominant over wrinkled seeds. Yellow seeds are dominant over green seeds. If two plants that are each heterozygous for both traits are crossed, which of the following offspring could result?

- (A) All round and yellow
- (B) All wrinkled and green
- (C) Half round and yellow; half wrinkled and green
- (D) Mostly round and yellow; some round and green;
some wrinkled and yellow; few wrinkled and green

8. Which of the following can be determined from a pedigree?

- (A) the entire set of genetic information an organism carries in its DNA
- (B) the inheritance of traits over multiple generations
- (C) the number of chromosomes in an individual's cells
- (D) the age of various family members at a given point in time

9. A red flower is crossed with a white flower. The resulting offspring are all pink. This is most likely the result of

- (A) 2 or more genes controlling flower color
- (B) codominance
- (C) incomplete dominance
- (D) a mutation

10. A farm has red cattle, white cattle, and roan cattle. A cattle farmer prefers more roan cattle. Which cattle should be crossed to produce only roan calves?

- (A) two roan cattle
- (B) a red cow and a white bull
- (C) a roan cow and a red bull
- (D) two red cattle

11. Blood type is inherited through multiple alleles, including I^A , I^B , and i .

A child has type A blood. If the father has type AB blood, what are all the possible phenotypes of the mother?

- (A) O or A
- (B) A or AB
- (C) A, B, AB
- (D) O, A, B, AB

Blood Types

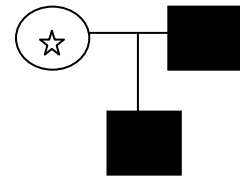
Genotype(s)	Phenotype
ii	O
$I^A I^A$, $I^A i$	A
$I^B I^B$, $I^B i$	B
$I^A I^B$	AB

12. Color blindness is caused by a recessive allele carried on the X chromosome. If a female is color blind, which of the following statements **MUST** be true?

- (A) her father is colorblind
- (B) all of her brothers must be colorblind
- (C) her mother is colorblind but her father is not
- (D) it is not possible for females to be colorblind

13. Consider the part of the pedigree found below that traces the inheritance of the recessive sex-linked disorder hemophilia. What is the genotype of the starred individual?

- (A) $X^H Y$
- (B) $X^h X^h$
- (C) $X^H X^h$
- (D) $X^H X^H$ OR $X^H X^h$



14. A particular disorder can affect both males and females equally and can skip generations through carriers. Its mode of inheritance therefore must be

- (A) autosomal dominant
- (B) autosomal recessive
- (C) X-linked dominant
- (D) X-linked recessive

15. Which statements best describe the relationship between the terms chromosomes, genes, and nuclei?

- (A) Chromosomes are found on genes. Genes are found in nuclei.
- (B) Chromosomes are found in nuclei. Nuclei are found in genes.
- (C) Genes are found on chromosomes. Chromosomes are found in nuclei.
- (D) Genes are found in nuclei. Nuclei are found in chromosomes.